

Projecting the trend of Steller sea lion populations in Western Alaska

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Abstract

This paper attempts to project the trends of Steller sea-lion (*Eumetopias jubatus*) populations in 6 subdivisions of the Western Alaska population. This population has declined dramatically since the 1950's. Trends in half of the areas appear to have leveled-off and possibly to be on the increase. Bootstrapping has been used to provide confidence intervals on predictions for the 2004 counts. For the 3 areas in which we expect increases, the 95% confidence intervals on predictions are: Eastern Gulf (2430-3740), Central Gulf (3260-3660) and Central Aleutians ((5160-6580). The Western Gulf counts have been somewhat erratic, with a gradual rate of decrease (about 2% per year) and wide confidence limits on a linear prediction (logarithmic scale) of 2690-3240. Trends in the Eastern Aleutians have been even more erratic, so that about all that can be inferred is that the population may be roughly stabilized. Only the Western Aleutians appear to be rapidly declining at about 10% per year, with a 95% confidence interval on a linear trend of 610 to 1100. Age structure changes do not appear to provide a viable explanation for the changing trends. Killer whale predation may have been a contributing factor in declines observed after 1989, but seem an unlikely explanation for the dramatic decline prior to the 1990's.

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